IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	§	
Marc Andre De Samber et al.	§	Confirmation No. 7189
	§	
Serial No.: 10/558,719	§	Group Art Unit: 2629
	§	
Filed: November 29, 2005	§	Examiner: Christopher E. Leiby
	§	
For: OPTO-ELECTRONIC INPUT DEVICE, METHOD OF MANUFACTURING SUCH A DEVICE AND METHOD OF MEASURING THE MOVEMENT OF AN OBJECT BY MEANS OF SUCH A DEVICE	§	

APPEAL BRIEF PURSUANT TO 37 C.F.R. §41.37

Mail Stop **APPEAL BRIEF - PATENTS**
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Appellants hereby submit their Appeal Brief in response to the final rejection of the present application.

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I. INTRODUCTION

This is an Appeal Brief under 37 C.F.R. § 41.37 appealing the rejections set forth in the Final Office Action dated February 10, 2009, finally rejecting claims 1-15 of the subject application. Each of the topics required by 37 C.F.R. § 41.37 is presented in this Brief and is labeled appropriately.

II. REAL PARTY IN INTEREST

The above-identified application is assigned, in its entirety, to **Koninklijke Philips Electronics N. V.**

III. RELATED APPEALS AND INTERFERENCES

Appellant is not aware of any co-pending appeal or interference that will directly affect, or be directly affected by, or have any bearing on, the Board's decision in the pending appeal.

IV. STATUS OF CLAIMS

Claims 1-15, which are presented in the Claims Appendix, are pending in the application. Each of claims 1-15 stand finally rejected by the Examiner under 35 U.S.C. §103(a). Accordingly, Appellant hereby appeals the final rejection of claims 1-15.

V. STATUS OF AMENDMENTS

The amendments filed in Appellants' Response to Final Office Action mailed on April 1, 2009 were considered by the Examiner and entered for purposes of appeal.

VI. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to an opto-electronic input device (10) (See FIGs. 2 and 4), wherein the input is formed by detected movements of an object (M). The input device (10) is provided with an optical module comprising (i) at least one laser (1) with a resonant cavity for generating a measurement radiation beam (S), (ii) optical means (2,6,8) for guiding the radiation beam (S) to a plate (V: V1,V2) close to the object (M), and (iii) conversion means (3) for converting radiation from the measurement radiation beam (S), which is reflected by the object (M), into an electric signal. The conversion means are formed by the combination of the resonant cavity (2,6,8) of the laser (1) and measurement means (3) for measuring a change in the resonant cavity during operation, which change is caused by interference of the reflected radiation from the measurement radiation beam (S), which penetrates the resonant cavity (2,6,8), and a standing wave in the resonant cavity, and which is representative of a relative movement of the object (M) with respect to the module (10). The optical module (10) comprises the laser (1) mounted on a carrier plate (4), and the optical means comprise an optical component (2,6,8) mounted on the carrier plate (4) and aligned with the laser (1), from which optical component the measurement radiation beam emitted (S) by the laser (1) travels to the plate (V: V1,V2) close to the object M. (See Appellants' specification on page 1, lines 1-19; and FIGs. 2 and 4).

The present invention effectively overcomes two inherently conflicting requirements, namely that on the one hand, a moveable plate (i.e., transparent moveable plate) is undesirable because it might adversely affect the operation of the opto-electronic device, and on the other hand, a rigid plate (i.e., rigid transparent plate) does not provide feedback (i.e., tactile or acoustic feedback) to the user. (See Appellants' specification on page 2, line 29 through page 3, line 2). In the embodiments as claimed, the plate (V) comprises a stationary transparent first portion (V1) and a

moveable non-transparent second portion (V2), both of which are situated within a projection of the object (M). (See Appellants' specification on page 4, lines 30-34). In particular, the first portion (V1) comprises an upper surface of a transparent block-shaped body (6) which is configured to enable passage of the radiation beam (S) upon entering near a lower sidewall (16) and through multiple internal reflections against sidewalls of the transparent block-shaped body (6) to the upper surface (V1) of the transparent block-shaped body. The lengthened light path (S) created by the multiple reflections against the sidewalls of the transparent block-shaped body (6) advantageously provide a favorable effect on the proper operation of the opto-electronic detection of movement of object M. (See Appellants' specification on page 3, lines 17-19, 26-29, and 33-34; page 8, lines 11-14; FIGs. 2 and 4.)

As claimed in independent claim 1 (one of two independent claims), the invention comprises an opto-electronic input device (10), wherein the input is formed by detected movements of an object (M). (See Appellants' specification FIGs 2 and 4). The input device includes an optical module (11) comprising at least one laser (1) with a resonant cavity (2,6,8) for generating a measurement radiation beam (S), optical means (2,6,8) for guiding the radiation beam (S) to a plate (V) close to the object (M), and conversion means for converting radiation from the measurement radiation beam (S), which is reflected by the object (M), into an electric signal. The conversion means are formed by the combination of the resonant cavity (2,6,8) of the laser (1) and measurement means (3) for measuring a change in the resonant cavity during operation. The change is caused by interference of the reflected radiation from the measurement radiation beam (S), which penetrates the resonant cavity, and the standing wave in the resonant cavity. The change is representative of a relative movement of the object (M) with respect to the module (11). The optical module (11) more particularly comprises the laser (1) mounted on a carrier plate (4), and the optical means comprise an optical component (2,6,8) mounted on the carrier plate and aligned with the laser (1), from which optical component the measurement radiation beam (S) emitted by the laser travels to the plate

(V: V1,V2) close to the object (M). The plate (V: V1,V2) comprises, close to the object (M), a first portion (V1) that comprises an upper surface of a transparent block-shaped body (6) which is situated within a projection of the object (M), wherein the transparent block-shaped body (6) (i) is configured to enable passage of the radiation beam (S) upon entering near a lower sidewall (16) and through multiple internal reflections against sidewalls of the transparent block-shaped body to the upper surface (V1) of the transparent block-shaped body (6) and (ii) is situated in a fixed position with respect to the carrier plate (4) in that the transparent block-shaped body is mounted onto the carrier plate. The plate (V: V1,V2) further comprises a second portion (V2) which is situated within a projection of the object (M) and is movable in a direction perpendicular to the carrier plate (4), wherein the second portion (V2) comprises signaling means (5,V2) which, in response to movement of the second portion (V2) in the direction perpendicular to the carrier plate (4), is configured to issue a signal that can be perceived by a user of the device (10) with one of his senses. (See page 6, lines 7-17, page 8, lines 7-14, and Figures 2 and 4, for example, of Appellants' specification.)

As claimed in dependent claim 6, the invention comprises the opto-electronic device (10) of claim 1, wherein the signaling means (5,V2) comprise a press button which springs back after the press button (5,V2) has been pressed, and which provides an experience for the tactile sense of the user when the press button (5,V2) is pressed, wherein the press button, upon being pressed, emits an acoustic signal that can be heard by the user, the opto-electronic device (10) further comprising: a microphone (33) configured to convert the acoustic signal of the press button (5,V2) to an electric signal, wherein the electric signal is used to wake up the device (10) from an energy-saving sleep mode. (See page 3, lines 3-8; page 4, lines 6-7; page 7, lines 1-4, and Figures 2 and 4, for example, of Appellants' specification.)

As claimed in dependent claim 9, the invention comprises the opto-electronic input device of claim 1, wherein the signaling means (5,V2) comprise a press button (See Appellants' specification on page 3, lines 7-14; and FIG. 2) which springs back

after the press button has been pressed, and which provides an experience for the tactile sense of the user when the press button is pressed; wherein the transparent block-shaped body (6) of the first portion of the plate (V1) comprises a round, transparent, block-shaped body which is attached onto the carrier plate (4), and the press button (5,V2) comprises, in the center thereof, a round opening (5A) (See Appellants' specification on page 3, lines 7-14; page 6, lines 7-17; and FIG. 2) within which the round, transparent, block-shaped body (6) is situated, the upper face (V1) of said block-shaped body (6) being substantially flush with an upper face (V2) of the press button (5,V2), or being situated lower by an amount necessary to enable the press button to be pressed (See Appellants' specification on page 6, lines 12-17); and wherein, near the lower sidewall (16) of the transparent block-shaped body (6) (See Appellants' specification on page 6, lines 25-27 and FIG. 2), the measurement radiation beam (S) is introduced into said transparent block-shaped body (6) at an angle such that the measurement radiation beam (S) moves spirally to the upper surface of the transparent block-shaped body (See Appellants' specification on page 3, lines 18-19, 26-29 and 33-34; and FIG. 2).

As claimed in dependent claim 15, the invention comprises the opto-electronic input device of claim 1, wherein the signaling means comprise a press button (5,V2) (See Appellants' specification on page 8, lines 11-16; and FIG. 4) which springs back after the press button (5,V2) has been pressed, and which provides an experience for the tactile sense of the user when the press button is pressed; wherein the transparent block-shaped body (6) of the first portion of the plate (V1) comprises a ring-shaped, transparent, block-shaped body which is attached onto the carrier plate (4) (See Appellants' specification on page 8, lines 7-8; and FIG. 4), and the press button (5,V2) is situated within the ring-shaped, transparent, block-shaped body (6) the upper face of which is substantially flush with an upper face (V2) of the press button (5,V2) (See FIG. 4); wherein, near the lower sidewall (See page 8, lines 17-19; and FIG. 4) of the transparent block-shaped body (6), the measurement radiation beam (S) is introduced

into said transparent block-shaped body (6) at an angle such that the measurement radiation beam (S) moves spirally to the upper surface (V1) of the transparent block-shaped body (6) (See page 8, lines 11-14; and FIG. 4).

As claimed in independent claim 14, the invention comprises a method of manufacturing an opto-electronic input device (10) including limitations similar to those of independent claim 1 discussed above but not repeated herein for sake of brevity.

VII. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The grounds of rejection to be reviewed by this appeal are as follows:

1) Whether claims 1-5 and 7-15 are unpatentable under 35 U.S.C. §103(a) over Liess et al. (US 2002/0104957, hereinafter ***Liess***), in view of Visser (US 2008/0284734, hereinafter ***Visser***), and further in view of Gordon (EP 1182606A2, hereinafter ***Gordon***).

2) Whether claim 6 is unpatentable under 35 U.S.C. §103(a) over ***Liess - Visser - Gordon*** in view of Wenstrand et al. (US 2004/0155860, hereinafter ***Wenstrand***).

VIII. ARGUMENTS

Arguments for Ground 1

Claims 1-5 and 7-15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Liess*, in view of *Visser*, and further in view of *Gordon*. Appellants submit that:

A) The combination of *Liess*, *Visser*, and *Gordon* fails to teach or suggest each and every limitation of claims 1-5 and 7-15, as required by 35 U.S.C. § 103; and

B) The Examiner has failed to establish a *prima facie* case of obviousness under 35 U.S.C. § 103.

A. Failure to Teach or Suggest Each and Every Limitation

As provided by 35 U.S.C. §103, "a patent may not be obtained ... if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains ... (*emphasis added*). Thus, when evaluating a claim for determining obviousness, all limitations of the claim must be evaluated.

1. Claims 1-5, 7-13 and 15

a. *Liess, Visser, and Gordon fail to teach all limitations*

Among other elements, independent claim 1 (and dependent claims 2-5, 7-13 and 15) defines an opto-electronic device comprising the elements of "a plate (V: V1,V2) comprising ... a first portion (V1) that comprises an *upper surface* of a transparent block-shaped body (6) ... wherein the *transparent block-shaped body* (6)

[is] ***(i)*** ... configured to enable passage of the radiation beam (S) upon entering near a *lower sidewall* (16) and through *multiple internal reflections* against sidewalls of the transparent block-shaped body (6) to the upper surface (V1) of the transparent block-shaped body (6) and ***(ii)*** ... situated in a *fixed position* ... mounted onto the carrier plate (4), ... *[and]* ... a *second portion* (V2) ... *movable* in a direction perpendicular to the carrier plate (4), wherein the *second portion* (V2) comprises *signaling means* (5) which, in response to movement of the second portion (5,V2) in the direction perpendicular to the carrier plate (4), is *configured to issue a signal* that can be perceived by a user of the device (10) with one of his senses" (emphasis added). Appellants submit that the combination of *Liess, Visser, and Gordon* fails to teach or suggest at least these elements of claim 1.

i. *Liess*

Liess discloses, in one embodiment, an optical input device (See *Liess* Fig. 1a) in which side emitting diode lasers 3 are mounted in such a way that they radiate in the vertical direction (See *Liess* at paragraph [0111], lines 3-4). In another embodiment of *Liess* (See *Liess* Fig. 9b), horizontally emitted beams 68,70 from the laser diodes 3 are reflected in the vertical direction through a lens 10 (*i.e., a bottom surface of the lens*) towards a window 12 at a top of the device (See *Liess* at paragraph [0111], lines 17-22) (*emphasis added*). Accordingly, *Liess* discloses an optical input device featuring laser diodes configured to emit beams directed towards a *bottom surface* of a lens element *and* which are *focused at* or near *an upper side* of a transparent window. *Liess* does not disclose passage of the radiation beam upon entering near a *lower sidewall* and through *multiple internal reflections* against sidewalls of the transparent block-shaped body to the upper surface of the transparent block-shaped body.

ii. *Visser*

Visser discloses a mobile phone 221 with a user interface 200 having a first input device 111 and a second input device 237. The first input device 111 comprises an optical sensor unit having an input window 112. The second input device 237 comprises a designated key of a keyboard 232 and is separate from the first input device 111. The first input device 111 is configured to provide a diode signal 104 indicative of a click movement in response to "[i] *a fast movement* in the z-direction of the finger 215 *toward the window*, [ii] *a window touch* of the finger and [iii] *a fast retracting* of the finger from the window" (emphasis added) (see *Visser*, paragraph [0025], lines 13-15 and paragraph [0026], lines 5-8). A processor processes the "click movement" signal as a *first* type of click signal. In response to a *click movement* from the *first* input device, *and* a *contemporaneous signal* from a user's pressing of the *second* input device (i.e., a designated key of a keyboard 232), the processor processes the *combination* as a *second* type of *click signal* (see *Visser*, paragraph paragraph [0026], lines 9-16). Accordingly, *Visser* discloses two types of *click signals*, (i) a first "click" signal involving use of a first input device and a diode signal indicative of a click movement and (ii) a second "click" signal involving a *combination* of a click movement on the first input device and a diode signal indicative of the click movement and the pressing of a second separate input device at the same time.

iii. *Gordon*

Gordon discloses a four axis optical mouse having an imaging surface of an optical stud in which "pressing on the *optical stud* 11 was accompanied by a slight *motion* to provide tactile feedback" (see Gordon at paragraph [0013], lines 12-14). Accordingly, *Gordon* discloses and teaches *movement* of the *optical stud*.

iv. Analysis

In making the rejection, the Examiner characterizes *Liess* as disclosing wherein the transparent block-shaped body is configured to enable passage of the radiation beam upon *entering near a lower side* of the transparent block-shaped body (*see* Paper No./Mail Date 20090210, page 4, *emphasis added*). Appellants respectfully disagree with this characterization. As discussed above, *Liess* does not disclose passage of the radiation beam upon entering near a *lower sidewall* and through *multiple internal reflections* against sidewalls of the transparent block-shaped body to the upper surface of the transparent block-shaped body; rather, *Liess* discloses laser diodes configured to emit beams directed towards a *bottom surface* of a lens element *and* which are *focused at* or near *an upper side* of a transparent window.

The Examiner characterizes *Visser* as disclosing the invention of *Liess* figure 1a with identical parts (figure 1) and allows the invention to be pressed/clicked by measuring the Z axis (*see* Id., page 5, first paragraph). Appellants respectfully disagree with this characterization. As discussed above, *Visser* discloses two types of *click signals*, (i) a first "click" signal involving use of a first input device and a diode signal indicative of a click movement and (ii) a second "click" signal involving a *combination* of a click movement on the first input device and a diode signal indicative of the click movement and the pressing of a second separate input device (i.e., a designated key of a keyboard) at the same time.

The Examiner also states that *Gordon* discloses issuance of a signal to be perceived by a user upon clicking of the portion done by pressing [down] on an imager similar to that of *Liess* and *Visser* (*see* Id., page 5, second paragraph).

The Examiner concludes that the combination of these disclosures results in allowing "*Liess*' invention to detect Z axis movements of objects as disclosed by *Visser* in order to determine clicks and have a device to perform more functions without additional hardware/parts" (*see* Id., page 5, third paragraph) as recited in claim 1. Appellant disagrees with the Examiner's characterization in that *Visser* teaches the

additional hardware of a second separate input device (i.e., a designated key of a keyboard).

The Examiner further concludes that "determination of a click would emit an audible response as disclosed by Gordon so the operator is aware of their action" (*see* Id., page 5, fourth paragraph).

The Examiner still further concludes that "having the transparent block-shaped body to allow multiple internal reflections against it's [sidewalls] heading towards the upper surface is seen as a design preference" and that "[n]o where in the applicant's disclosure states the improvement or advantage of such a structure besides a way to allow light to reach the surface as Liess, Visser, and Gordon all disclose" (*see* Id., page 5, fifth paragraph). Appellants respectfully disagree with this characterization. As discussed above and as previously argued (see Paper No./Mail Date 20090401, page 8 line 15 to page 9, line 7), the present invention effectively overcomes two inherently conflicting requirements, namely that on the one hand, a moveable plate (i.e., transparent moveable plate) is undesirable because it might adversely affect the operation of the opto-electronic device, and on the other hand, a rigid plate (i.e., rigid transparent plate) does not provide feedback (i.e., tactile or acoustic feedback) to the user. (See Appellants' specification on page 2, line 29 through page 3, line 2). In the embodiments as claimed, the plate (V) comprises a stationary transparent first portion (V1) and a moveable non-transparent second portion (V2), both of which are situated within a projection of the object (M). (See Appellants' specification on page 4, lines 30-34). In particular, the first portion (V1) comprises an upper surface of a transparent block-shaped body (6) which is configured to enable passage of the radiation beam (S) upon entering near a lower sidewall (16) and through multiple internal reflections against sidewalls of the transparent block-shaped body (6) to the upper surface (V1) of the transparent block-shaped body. The *lengthened light path* (S) created by the *multiple reflections* against the *sidewalls* of the transparent block-shaped body (6) advantageously provide a favorable effect on the *proper operation* of the opto-electronic

detection of movement of object M. (See Appellants' specification on page 3, lines 17-19, 26-29, and 33-34; page 8, lines 11-14; FIGs. 2 and 4.)

The Examiner further contends that "there are many ways to reflect light to a surface of an object, including multiple internal reflections, and that Liess' method using a lens *negates* the need of an object enabling internal reflections and any other need of additional parts" (emphasis added) (*see* Id., page 5, sixth paragraph). Appellants assert that the Examiner is misconstruing the claim limitations of the present invention. In particular, the Examiner is misconstruing the limitation that "passage of the radiation beam upon entering near a *lower sidewall* and through *multiple internal reflections* against sidewalls of the transparent block-shaped body to the upper surface of the transparent block-shaped body", as recited in claim 1, can be negated. However, as discussed herein, *Liess* discloses an optical input device featuring laser diodes configured to emit beams directed towards a *bottom surface* of a lens element *and* which are *focused at* or near *an upper side* of a transparent window. Accordingly, *Liess does not teach* the limitation of multiple internal reflections as required by the claims.

Therefore, at least for the reasons discussed above, Appellants submit that the methods of *Liess*, *Visser*, and *Gordon* are not combinable with one another because the references fail to disclose the elements "transparent block-shaped body ... (i) configured to enable passage of the radiation beam (S) upon entering near a lower sidewall and through multiple internal reflections against sidewalls of the transparent block-shaped body to the upper surface (V1) of the transparent block-shaped body and ... (ii) situated in a fixed position ... mounted onto the carrier plate, ... *[and]* ... a *second portion* (V2) ... situated within a projection of the object (M) ... movable in a direction perpendicular to the carrier plate, wherein the *second portion* (V2) comprises signaling means (5) which, in response to movement of the second portion (V2) in the direction perpendicular to the carrier plate, is configured to issue a signal that can be perceived by a user of the device with one of his senses" as recited in independent claim 1 and dependent claims 2-5, 7-13 and 15. Accordingly, Appellants respectfully request

withdrawal of the rejection of claims 1-5, 7-13 and 15.

2. Claim 14

Among other elements, similar to claim 1 discussed above, independent claim 14 defines a method of manufacturing an opto-electronic input device comprising the elements of "a plate (V) comprising ... a *first portion* (V1) that comprises an *upper surface* of a transparent block-shaped body ... situated *within a projection* of the object (M) **...** wherein the *transparent block-shaped body* [is] **...** ***(i)*** configured to enable passage of the radiation beam (S) upon entering near a *lower sidewall* and through *multiple internal reflections* against sidewalls of the transparent block-shaped body to the upper surface of the transparent block-shaped body and ... ***(ii)*** situated in a *fixed position* ... mounted onto the carrier plate, ... *[and]* ... a *second portion* (V2) ... situated *within a projection* of the object (M) **...** *movable* in a direction perpendicular to the carrier plate, wherein the *second portion* (V2) comprises *signaling means* which, in response to movement of the second portion (V2) in the direction perpendicular to the carrier plate, is *configured to issue a signal* that can be perceived by a user of the device with one of his senses." Therefore, Appellants submit that the discussion above regarding the combination of *Liess*, *Visser*, and *Gordon* failing to teach or suggest similar elements recited in claim 1 is equally applicable to elements recited in claim 14. Therefore, the combination of *Liess*, *Visser*, and *Gordon* fails to teach or suggest each and every element of claim 14. Accordingly, Appellants respectfully request withdrawal of the rejection of claim 14.

B. Failure to Establish a Prima Facie Case of Obviousness

1. Claims 1-5, 7-13 and 15

In the present case, the *Gordon* reference, by providing an optical stud in which "pressing on the *optical stud* 11 was accompanied by a slight *motion* to provide tactile feedback" (see *Gordon* at paragraph [0013], lines 12-14), is directed to a system in which the optical body undergoes movement. As recited in claim 1, a first portion (V1) of plate (V) comprises an upper surface (V1) of a transparent block-shaped body (6) that is "situated in a fixed position." Thus, *Gordon* clearly *teaches away* from claim 1, recited above. Since it is well recognized that *teaching away* from the claimed invention is a per se demonstration of lack of prima facie obviousness, it is clear that the examiner has not borne the burden of factually supporting any prima facie conclusion of obviousness. Thus, Appellants submit that the Examiner has failed to establish a prima facie case of obviousness. Accordingly, Appellants respectfully request withdrawal of the rejection of claims 1-5 and 7-15.

2. Claim 14

In the present case, the *Gordon* reference, by providing an optical stud in which "pressing on the *optical stud* 11 was accompanied by a slight *motion* to provide tactile feedback" (see *Gordon* at paragraph [0013], lines 12-14), is directed to a system in which the optical body undergoes movement. As recited in claim 14, a first portion (V1) of plate (V) comprises an upper surface (V1) of a transparent block-shaped body (6) that is "situated in a fixed position." Thus, *Gordon* clearly *teaches away* from claim 14, recited above. Since it is well recognized that *teaching away* from the claimed invention is a per se demonstration of lack of prima facie obviousness, it is clear that the examiner has not borne the burden of factually supporting any prima facie conclusion of obviousness. Thus, Appellants submit that the Examiner has failed to establish a prima facie case of obviousness. Accordingly, Appellants respectfully request withdrawal of the rejection of claim 14.

Arguments for Ground 2

Claim 6 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Liess - Visser - Gordon* in view of Wenstrand. Appellants submit that Claim 6 depends from and further limits allowable independent claim 1, as discussed herein above, and therefore is allowable as well.

IX. CONCLUSION

In view of the foregoing, Appellant submits that the rejection of Claims 1-15 is improper and should not be sustained. Therefore, a reversal of the rejections in the Final Office Action mailed on February 10, 2009 is respectfully requested.

Respectfully submitted,

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a-32658.277

X. CLAIMS APPENDIX

1. An opto-electronic input device, wherein the input is formed by detected movements of an object (M), which input device is provided with an optical module comprising at least one laser with a resonant cavity for generating a measurement radiation beam (S), optical means for guiding the radiation beam (S) to a plate (V) close to the object (M), and conversion means for converting radiation from the measurement radiation beam (S), which is reflected by the object (M), into an electric signal, wherein the conversion means are formed by the combination of the resonant cavity of the laser and measurement means for measuring a change in the resonant cavity during operation, which change is caused by interference of the reflected radiation from the measurement radiation beam (S), which penetrates the resonant cavity, and the standing wave in the resonant cavity, and which is representative of a relative movement of the object (M) with respect to the module, wherein the optical module comprises the laser mounted on a carrier plate, and the optical means comprise an optical component mounted on the carrier plate and aligned with the laser, from which optical component the measurement radiation beam (S) emitted by the laser travels to the plate (V) close to the object (M), wherein the plate (V) comprises, close to the object (M), a first portion (V1) that comprises an upper surface of a transparent block-shaped body which is situated within a projection of the object (M), wherein the transparent block-shaped body (i) is configured to enable passage of the radiation beam (S) upon entering near a lower sidewall and through multiple internal reflections against sidewalls of the transparent block-shaped body to the upper surface of the transparent block-shaped body and (ii) is situated in a fixed position with respect to the carrier plate in that the transparent block-shaped body is mounted onto the carrier plate, as well as a second portion (V2) which is situated within a projection of the object (M) and is movable in a direction perpendicular to the carrier plate, wherein the second portion (V2) comprises signaling means which,

in response to movement of the second portion (V2) in the direction perpendicular to the carrier plate, is configured to issue a signal that can be perceived by a user of the device with one of his senses.

2. An opto-electronic device as claimed in claim 1, wherein the signaling means comprise a press button which springs back after the press button has been pressed, and which provides an experience for the tactile sense of the user when the press button is pressed.

3. An opto-electronic device as claimed in claim 2, wherein the press button, upon being pressed, emits an acoustic signal that can be heard by the user.

4. An opto-electronic device as claimed in claim 2, wherein the press button comprises a thin, bent membrane of steel.

5. An opto-electronic device as claimed in claim 3, further comprising:

a microphone configured to convert the acoustic signal of the press button to an electric signal.

6. An opto-electronic device as claimed in claim 5, wherein the electric signal is used to wake up the device from an energy-saving sleep mode.

7. An opto-electronic device as claimed in claim 2, wherein the transparent block-shaped body of the first portion of the plate (V1) comprises a round, transparent, block-shaped body which is attached onto the carrier plate, and the press button comprises, in the center thereof, a round opening within which the round, transparent, block-shaped body is situated, the upper face of said block-shaped body being substantially flush with

an upper face of the press button, or being situated lower by an amount necessary to enable the press button to be pressed.

8. An opto-electronic device as claimed in claim 2, wherein the transparent block-shaped body of the first portion of the plate (V1) comprises a ring-shaped, transparent, block-shaped body which is attached onto the carrier plate, and the press button is situated within the ring-shaped, transparent, block-shaped body the upper face of which is substantially flush with an upper face of the press button.

9. An opto-electronic device as claimed in claim 7, wherein, near the lower sidewall of the transparent block-shaped body, the measurement radiation beam (S) is introduced into said transparent block-shaped body at an angle such that the measurement radiation beam (S) moves spirally to the upper surface of the transparent block-shaped body.

10. An opto-electronic device as claimed in claim 1, wherein the dimensions of the first and second portions (V1, V2) of the plate are suitable for an object (M) that is formed by a human finger.

11. An opto-electronic device as claimed in claim 1, wherein the laser is attached onto the carrier plate in such a manner that the resonant cavity of the laser is parallel to said carrier plate.

12. A method of measuring the movement of an object (M) relative to an input device, wherein for this purpose use is made of an opto-electronic input device as claimed in claim 1.

13. A method as claimed in claim 12, wherein the object (M) is formed by a finger of a human user of the device.

14. A method of manufacturing an opto-electronic input device, wherein the input is formed by detected movements of an object (M), which input device is provided with an optical module comprising at least one laser with a resonant cavity for generating a measurement radiation beam (S), optical means for guiding the radiation beam (S) to a plate (V) close to the object (M), and conversion means for converting radiation from the measurement radiation beam (S), which is reflected by the object (M), into an electric signal, wherein the conversion means are formed by the combination of the resonant cavity of the laser and measurement means for measuring a change in the resonant cavity during operation, which change is caused by interference of the reflected radiation from the measurement radiation beam (S) penetrating the resonant cavity and the standing wave in the resonant cavity, which is representative of a relative movement of the object (M) with respect to the module, wherein the optical module is formed by a carrier plate on which the laser is mounted, and the optical means are formed by an optical component, mounted on the carrier plate and aligned with the laser, for the measurement radiation beam (S) emitted by the laser, which measurement radiation beam is guided from said location to the plate (V) close to the object (M), wherein, near the object (M), the plate (V) is formed in two portions (V1, V2), including a first portion (V1) that comprises an upper surface of a transparent block-shaped body situated within a projection of the object (M), wherein the transparent block-shaped body (i) is designed so as to transmit the radiation beam (S) upon entering near a lower sidewall and through multiple internal reflections against sidewalls of the transparent block-shaped body to the upper surface of the transparent block-shaped body and (ii) is arranged in a fixed position with respect to the carrier plate in that the transparent block-shaped body is mounted onto the carrier plate, and a second portion (V2) situated within a projection of the object (M) is formed so as to be movable in a direction

perpendicular to the carrier plate, wherein the second portion (V2) comprises signaling means which, in response to movement of the second portion (V2) in a direction perpendicular to the carrier plate, is configured to emit a signal that can be perceived by one of the senses of the user of the device.

15. An opto-electronic device as claimed in claim 8, wherein, near the lower sidewall of the transparent block-shaped body, the measurement radiation beam (S) is introduced into said transparent block-shaped body at an angle such that the measurement radiation beam (S) moves spirally to the upper surface of the transparent block-shaped body.

XI. EVIDENCE APPENDIX

No evidence pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 has been entered by the Examiner or relied upon by Appellant in the instant Appeal beyond that which is already contained in the as-filed application, as is delineated in the Arguments section of this Brief.

XII. RELATED PROCEEDINGS APPENDIX

Appellant is not aware of any co-pending appeal or interference which will directly affect or be directly affected by or have any bearing on the Board's decision in the instant appeal.